

SEQUENCE LISTING

<110> Université Laval
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Coull, Jeffrey

<120> CNS chloride modulation and uses thereof

<130> 85409-29

<150> US 60/470,885

<151> 2003-05-16

<160> 8

<170> PatentIn version 3.2

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Glu	Glu	Glu	Met	Asp	Thr	Ser	Pro	Met	Val	Ser	Ser	Leu	Leu	Ser	Gly	
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Leu	Ala	Asn	Tyr	Thr	Asn	Leu	Pro	Gln	Gly	Ser	Arg	Glu	His	Glu	Glu	
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gca	gaa	aac	aat	gag	ggt	gga	aaa	aag	aag	ccg	gtg	cag	gcc	cca	cgc	288
Ala	Glu	Asn	Asn	Glu	Gly	Gly	Lys	Lys	Lys	Pro	Val	Gln	Ala	Pro	Arg	
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Ile	Asp	Met	Asp	His	Pro	Tyr	Val	Phe	Ser	Asp	Met	Thr	Ser	Tyr	Phe		
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Thr	Leu	Leu	Val	Gly	Ile	Tyr	Phe	Pro	Ser	Val	Thr	Gly	Ile	Met	Ala		
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Ser	Val	Val	Leu	Phe	Gly	Ala	Cys	Ile	Glu	Gly	Val	Val	Leu	Arg	Asp		
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Lys	Phe	Gly	Glu	Ala	Val	Asn	Gly	Asn	Leu	Val	Val	Gly	Thr	Leu	Ala		
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tgg	cca	tct	cca	tgg	gta	att	gtc	atc	gga	tcc	ttc	ttc	tcc	acc	tgt		1488
Trp	Pro	Ser	Pro	Trp	Val	Ile	Val	Ile	Gly	Ser	Phe	Phe	Ser	Thr	Cys		
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Gly	Ala	Gly	Leu	Gln	Ser	Leu	Thr	Gly	Ala	Pro	Arg	Leu	Leu	Gln	Ala		
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Ile	Ser	Arg	Asp	Gly	Ile	Val	Pro	Phe	Leu	Gln	Val	Phe	Gly	His	Gly		
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Lys	Ala	Asn	Gly	Glu	Pro	Thr	Trp	Ala	Leu	Leu	Leu	Thr	Ala	Cys	Ile		
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Cys	Glu	Ile	Gly	Ile	Leu	Ile	Ala	Ser	Leu	Asp	Glu	Val	Ala	Pro	Ile		
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Tyr Tyr His Trp Thr Leu Ser Phe Leu Gly Met Ser Leu Cys Leu Ala			
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Leu Met Phe Ile Cys Ser Trp Tyr Tyr Ala Leu Val Ala Met Leu Ile			
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Trp Gly Asp Gly Ile Arg Gly Leu Ser Leu Ser Ala Ala Arg Tyr Ala			
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Gln Leu Leu Val Leu Val Arg Val Asp Gln Asp Gln Asn Val Val His			
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Pro Gln Leu Leu Ser Leu Thr Ser Gln Leu Lys Ala Gly Lys Gly Leu			
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Thr Ile Val Gly Ser Val Leu Glu Gly Thr Phe Leu Glu Asn His Pro			
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Gln Ala Gln Arg Ala Glu Glu Ser Ile Arg Arg Leu Met Glu Ala Glu			
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Lys Val Lys Gly Phe Cys Gln Val Val Ile Ser Ser Asn Leu Arg Asp			
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aac act gtg ctt gtt ggc tgg ccc cgc aac tgg cgc cag aag gaa gat			2352
Asn Thr Val Leu Val Gly Trp Pro Arg Asn Trp Arg Gln Lys Glu Asp			
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His Gln Thr Trp Arg Asn Phe Ile Glu Leu Val Arg Glu Thr Thr Ala			
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Asn Pro Glu Arg Phe Ser Glu Gly Ser Ile Asp Val Trp Trp Ile Val	
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His Asp Gly Gly Met Leu Met Leu Leu Pro Phe Leu Leu Arg His His	
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Lys Val Trp Arg Lys Cys Lys Met Arg Ile Phe Thr Val Ala Gln Met	
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Ala Glu Asn Asn Glu Gly Gly Lys Lys Lys Pro Val Gln Ala Pro Arg
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Met Gly Thr Phe Met Gly Val Tyr Leu Pro Cys Leu Gln Asn Ile Phe
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Ala Gly Gly Ser Tyr Tyr Met Ile Ser Arg Ser Leu Gly Pro Glu Phe
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Pro Ala Met Ala Ile Phe Lys Ala Glu Asp Ala Ser Gly Glu Ala Ala
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Met Ala Thr Val Val Phe Val Gly Val Lys Tyr Val Asn Lys Phe Ala
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Gly Val Ile Lys Ser Ala Phe Asp Pro Pro Asn Phe Pro Ile Cys Leu
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Leu Gly Asn Arg Thr Leu Ser Arg His Gly Phe Asp Val Cys Ala Lys
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Leu Ala Trp Glu Gly Asn Glu Thr Val Thr Thr Arg Leu Trp Gly Leu
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Arg Asn Asn Val Thr Glu Ile Gln Gly Ile Pro Gly Ala Ala Ser Gly
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580 585 590

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Ala Gly Leu Ile Tyr Lys Tyr Ile Glu Tyr Arg Gly Ala Glu Lys Glu
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Trp Gly Asp Gly Ile Arg Gly Leu Ser Leu Ser Ala Ala Arg Tyr Ala
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Leu Leu Arg Leu Glu Glu Gly Pro Pro His Thr Lys Asn Trp Arg Pro

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Pro Gln Leu Leu Ser Leu Thr Ser Gln Leu Lys Ala Gly Lys Gly Leu		
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Thr Ile Val Gly Ser Val Leu Glu Gly Thr Phe Leu Glu Asn His Pro		
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Gln Ala Gln Arg Ala Glu Glu Ser Ile Arg Arg Leu Met Glu Ala Glu		
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Lys Val Lys Gly Phe Cys Gln Val Val Ile Ser Ser Asn Leu Arg Asp		
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Gly Val Ser His Leu Ile Gln Ser Gly Gly Leu Gly Gly Leu Gln His		
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His Gln Thr Trp Arg Asn Phe Ile Glu Leu Val Arg Glu Thr Thr Ala		
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Gly His Leu Ala Leu Leu Val Thr Lys Asn Val Ser Met Phe Pro Gly		
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Asn Pro Glu Arg Phe Ser Glu Gly Ser Ile Asp Val Trp Trp Ile Val		
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His Asp Gly Gly Met Leu Met Leu Leu Pro Phe Leu Leu Arg His His		
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Lys Val Trp Arg Lys Cys Lys Met Arg Ile Phe Thr Val Ala Gln Met		
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Asp Asp Asn Ser Ile Gln Met Lys Lys Asp Leu Thr Thr Phe Leu Tyr		
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His Leu Arg Ile Thr Ala Glu Val Glu Val Val Glu Met His Glu Ser		
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Asp Ile Ser Ala Tyr Thr Tyr Glu Lys Thr Leu Val Met Glu Gln Arg
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945 950 955 960

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Ser Pro Phe Ile Asn Ser Thr Asp Thr Glu Lys Gly Arg Glu Tyr Asp
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Pro Cys Leu Gln Asn Ile Phe Gly Val Ile Leu Phe Leu Arg Leu Thr
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Ser	Asp	Met	Thr	Ser	Tyr	Phe	Thr	Leu	Leu	Val	Gly	Ile	Tyr	Phe	Pro	
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Gly	Met	Ser	Leu	Cys	Leu	Ala	Leu	Met	Phe	Ile	Cys	Ser	Trp	Tyr	Tyr	
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Gln	Asp	Gln	Asn	Val	Val	His	Pro	Gln	Leu	Leu	Ser	Leu	Thr	Ser	Gln	
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Arg	Arg	Met	His	Thr	Ala	Val	Arg	Leu	Asn	Glu	Val	Ile	Val	Asn		
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Ile Met Glu Ser Phe Cys Met Val Phe Ile Cys Cys Ser Cys Thr Met
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Pro Ala Met Ala Ile Phe Lys Ala Glu Asp Ala Ser Gly Glu Ala Ala
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Phe Cys Ser Ser Arg Leu Leu Asn Ala Thr Cys Asp Glu Tyr Phe Thr

325

330

335

Arg Asn Asn Val Thr Glu Ile Gln Gly Ile Pro Gly Ala Ala Ser Gly
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Val Glu Arg Arg Gly Met Pro Ser Val Gly Leu Ala Asp Gly Thr Pro
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Val Asp Met Asp His Pro Tyr Val Phe Ser Asp Met Thr Ser Tyr Phe
385 390 395 400

Thr Leu Leu Val Gly Ile Tyr Phe Pro Ser Val Thr Gly Ile Met Ala
405 410 415

Gly Ser Asn Arg Ser Gly Asp Leu Arg Asp Ala Gln Lys Ser Ile Pro
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Thr Gly Thr Ile Leu Ala Ile Ala Thr Thr Ser Ala Val Tyr Ile Ser
435 440 445

Ser Val Val Leu Phe Gly Ala Cys Ile Glu Gly Val Val Leu Arg Asp
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Lys Phe Gly Glu Ala Val Asn Gly Asn Leu Val Val Gly Thr Leu Ala
465 470 475 480

Trp Pro Ser Pro Trp Val Ile Val Ile Gly Ser Phe Phe Ser Thr Cys
485 490 495

Gly Ala Gly Leu Gln Ser Leu Thr Gly Ala Pro Arg Leu Leu Gln Ala
500 505 510

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gagtatttat	cgttattact	attattatta	ggcctgcctt	taattttagt	gtttcggtat	5426
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<212> PRT

<213> Rattus norvegicus

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Pro Gly Asp Gly Asn Pro Lys Glu Ser Ser Pro Phe Ile Asn Ser Thr
20 25 30

Asp Thr Glu Lys Gly Arg Glu Tyr Asp Gly Arg Asn Met Ala Leu Phe
35 40 45

Glu Glu Glu Met Asp Thr Ser Pro Met Val Ser Ser Leu Leu Ser Gly
50 55 60

Leu Ala Asn Tyr Thr Asn Leu Pro Gln Gly Ser Lys Glu His Glu Glu
65 70 75 80

Ala Glu Asn Asn Glu Gly Gly Lys Lys Lys Pro Val Gln Ala Pro Arg
85 90 95

Met Gly Thr Phe Met Gly Val Tyr Leu Pro Cys Leu Gln Asn Ile Phe
100 105 110

Gly Val Ile Leu Phe Leu Arg Leu Thr Trp Val Val Gly Ile Ala Gly
115 120 125

Ile Met Glu Ser Phe Cys Met Val Phe Ile Cys Cys Ser Cys Thr Met
130 135 140

Leu Thr Ala Ile Ser Met Ser Ala Ile Ala Thr Asn Gly Val Val Pro
145 150 155 160

Ala Gly Gly Ser Tyr Tyr Met Ile Ser Arg Ser Leu Gly Pro Glu Phe
165 170 175

Gly Gly Ala Val Gly Leu Cys Phe Tyr Leu Gly Thr Thr Phe Ala Gly

180	185	190
Ala Met Tyr Ile Leu Gly Thr Ile Glu Ile Leu Leu Ala Tyr Leu Phe 195 200 205		
Pro Ala Met Ala Ile Phe Lys Ala Glu Asp Ala Ser Gly Glu Ala Ala 210 215 220		
Ala Met Leu Asn Asn Met Arg Val Tyr Gly Thr Cys Val Leu Thr Cys 225 230 235 240		
Met Ala Thr Val Val Phe Val Gly Val Lys Tyr Val Asn Lys Phe Ala 245 250 255		
Leu Val Phe Leu Gly Cys Val Ile Leu Ser Ile Leu Ala Ile Tyr Ala 260 265 270		
Gly Val Ile Lys Ser Ala Phe Asp Pro Pro Asn Phe Pro Ile Cys Leu 275 280 285		
Leu Gly Asn Arg Thr Leu Ser Arg His Gly Phe Asp Val Cys Ala Lys 290 295 300		
Leu Ala Trp Glu Gly Asn Glu Thr Val Thr Thr Arg Leu Trp Gly Leu 305 310 315 320		
Phe Cys Ser Ser Arg Leu Leu Asn Ala Thr Cys Asp Glu Tyr Phe Thr 325 330 335		
Arg Asn Asn Val Thr Glu Ile Gln Gly Ile Pro Gly Ala Ala Ser Gly 340 345 350		
Leu Ile Lys Glu Asn Leu Trp Ser Ser Tyr Leu Thr Lys Gly Val Ile 355 360 365		
Val Glu Arg Arg Gly Met Pro Ser Val Gly Leu Ala Asp Gly Thr Pro 370 375 380		
Val Asp Met Asp His Pro Tyr Val Phe Ser Asp Met Thr Ser Tyr Phe 385 390 395 400		
Thr Leu Leu Val Gly Ile Tyr Phe Pro Ser Val Thr Gly Ile Met Ala 405 410 415		

Gly Ser Asn Arg Ser Gly Asp Leu Arg Asp Ala Gln Lys Ser Ile Pro
420 425 430

Thr Gly Thr Ile Leu Ala Ile Ala Thr Thr Ser Ala Val Tyr Ile Ser
435 440 445

Ser Val Val Leu Phe Gly Ala Cys Ile Glu Gly Val Val Leu Arg Asp
450 455 460

Lys Phe Gly Glu Ala Val Asn Gly Asn Leu Val Val Gly Thr Leu Ala
465 470 475 480

Trp Pro Ser Pro Trp Val Ile Val Ile Gly Ser Phe Phe Ser Thr Cys
485 490 495

Gly Ala Gly Leu Gln Ser Leu Thr Gly Ala Pro Arg Leu Leu Gln Ala
500 505 510

Ile Ser Arg Asp Gly Ile Val Pro Phe Leu Gln Val Phe Gly His Gly
515 520 525

Lys Ala Asn Gly Glu Pro Thr Trp Ala Leu Leu Leu Thr Ala Cys Ile
530 535 540

Cys Glu Ile Gly Ile Leu Ile Ala Ser Leu Asp Glu Val Ala Pro Ile
545 550 555 560

Leu Ser Met Phe Phe Leu Met Cys Tyr Met Phe Val Asn Leu Ala Cys
565 570 575

Ala Val Gln Thr Leu Leu Arg Thr Pro Asn Trp Arg Pro Arg Phe Arg
580 585 590

Tyr Tyr His Trp Thr Leu Ser Phe Leu Gly Met Ser Leu Cys Leu Ala
595 600 605

Leu Met Phe Ile Cys Ser Trp Tyr Tyr Ala Leu Val Ala Met Leu Ile
610 615 620

Ala Gly Leu Ile Tyr Lys Tyr Ile Glu Tyr Arg Gly Ala Glu Lys Glu
625 630 635 640

Trp Gly Asp Gly Ile Arg Gly Leu Ser Leu Ser Ala Ala Arg Tyr Ala
645 650 655

Leu Leu Arg Leu Glu Glu Gly Pro Pro His Thr Lys Asn Trp Arg Pro
660 665 670

Gln Leu Leu Val Leu Val Arg Val Asp Gln Asp Gln Asn Val Val His
675 680 685

Pro Gln Leu Leu Ser Leu Thr Ser Gln Leu Lys Ala Gly Lys Gly Leu
690 695 700

Thr Ile Val Gly Ser Val Leu Glu Gly Thr Phe Leu Asp Asn His Pro
705 710 715 720

Gln Ala Gln Arg Ala Glu Glu Ser Ile Arg Arg Leu Met Glu Ala Glu
725 730 735

Lys Val Lys Gly Phe Cys Gln Val Val Ile Ser Ser Asn Leu Arg Asp
740 745 750

Gly Val Ser His Leu Ile Gln Ser Gly Gly Leu Gly Gly Leu Gln His
755 760 765

Asn Thr Val Leu Val Gly Trp Pro Arg Asn Trp Arg Gln Lys Glu Asp
770 775 780

His Gln Thr Trp Arg Asn Phe Ile Glu Leu Val Arg Glu Thr Thr Ala
785 790 795 800

Gly His Leu Ala Leu Leu Val Thr Lys Asn Val Ser Met Phe Pro Gly
805 810 815

Asn Pro Glu Arg Phe Ser Glu Gly Ser Ile Asp Val Trp Trp Ile Val
820 825 830

His Asp Gly Gly Met Leu Met Leu Leu Pro Phe Leu Leu Arg His His
835 840 845

Lys Val Trp Arg Lys Cys Lys Met Arg Ile Phe Thr Val Ala Gln Met
850 855 860

Asp Asp Asn Ser Ile Gln Met Lys Lys Asp Leu Thr Thr Phe Leu Tyr
 865 870 875 880

His Leu Arg Ile Thr Ala Glu Val Glu Val Val Glu Met His Glu Ser
 885 890 895

Asp Ile Ser Ala Tyr Thr Tyr Glu Lys Thr Leu Val Met Glu Gln Arg
 900 905 910

Ser Gln Ile Leu Lys Gln Met His Leu Thr Lys Asn Glu Arg Glu Arg
 915 920 925

Glu Ile Gln Ser Ile Thr Asp Glu Ser Arg Gly Ser Ile Arg Arg Lys
 930 935 940

Asn Pro Ala Asn Thr Arg Leu Arg Leu Asn Val Pro Glu Glu Thr Ala
 945 950 955 960

Cys Asp Asn Glu Glu Lys Pro Glu Glu Glu Val Gln Leu Ile His Asp
 965 970 975

Gln Ser Ala Pro Ser Cys Pro Ser Ser Ser Pro Ser Pro Gly Glu Glu
 980 985 990

Pro Glu Gly Glu Gly Glu Thr Asp Pro Glu Lys Val His Leu Thr Trp
 995 1000 1005

Thr Lys Asp Lys Ser Ala Ala Gln Lys Asn Lys Gly Pro Ser Pro
 1010 1015 1020

Val Ser Ser Glu Gly Ile Lys Asp Phe Phe Ser Met Lys Pro Glu
 1025 1030 1035

Trp Glu Asn Leu Asn Gln Ser Asn Val Arg Arg Met His Thr Ala
 1040 1045 1050

Val Arg Leu Asn Glu Val Ile Val Asn Lys Ser Arg Asp Ala Lys
 1055 1060 1065

Leu Val Leu Leu Asn Met Pro Gly Pro Pro Arg Asn Arg Asn Gly
 1070 1075 1080

Asp Glu Asn Tyr Met Glu Phe Leu Glu Val Leu Thr Glu Gln Leu

1085

1090

1095

Asp Arg Val Met Leu Val Arg Gly Gly Gly Arg Glu Val Ile Thr
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Ile Tyr Ser
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<220>

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20

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tcttcttgag actgcagtca

20